

Claims

1. A stapling device comprised of an articulation section, a staple cartridge containing staples and parts of a staple-firing mechanism, and an anvil portion, wherein said cartridge is located at one end of said articulation section and said anvil portion is located at the other end of said articulation section;

characterized in that the front surfaces of said anvil and said cartridge are curved and that, when said articulation section is bent bringing said curved front surfaces of said anvil and said cartridge opposite each other, said curved surfaces help to correct transverse misalignment and to bring said anvil and said cartridge into the correct working relationship.
2. A stapling device according to claim 1, wherein the cartridge is located at the proximal end of the articulation section and the anvil is located at the distal end of said articulation section.
3. A stapling device according to claim 1, wherein the face of the cartridge is comprised of a smooth curved surface having a curvature that matches the curvature of the front face of the anvil.
4. A stapling device according to claim 1, wherein the center of curvature of the cartridge face in the area of the array is lowered

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relative to the center of curvature of the rest of the surface, resulting in a surface having two levels.

5. A stapling device according to claim 4, wherein the presence of the two levels assists in correcting longitudinal misalignment.
6. A stapling device according to claim 1, further comprising a recess and step structure in the curved face of the staple cartridge, wherein said step structure is a reflector of ultrasound radiation that comprises one element of an ultrasound positioning assembly.
7. A stapling device according to claim 1, wherein the articulation section is a two-way articulation section and the surface of the cartridge is a section of a right circular cylinder cut by a plane parallel to its axis.
8. A stapling device according to claim 1, wherein the articulation section is a four-way articulation section and the surface of the cartridge is spherical.
9. A method of bringing the anvil and cartridge of the stapling device of claim 1 into correct working relationship, said method comprising over-bending the articulation section.

10. A stapling device according to claim 1 and further comprising a plunger, wherein the parts of the staple-firing mechanism comprise cams and staple pushers; wherein pulling on said plunger causes said cams to move longitudinally in the cartridge, said longitudinal movement causing said staple pushers to rise towards the curved front surface of said cartridge and the staples to exit said cartridge in a direction at right angles to the direction of motion of said cams.